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Route To:

Subject: Munds Park Forest Health Project on the Mormon Lake RD

To: District Ranger, Mormon Lake and Peaks RD, Coconino NF

On September 5, 2007, I visited the Mormon Lake Ranger District, Coconino NF, at the request of Patricia Ringle to discuss and evaluate potential forest health projects within the larger Munds Park Fuels Reduction project area on the District. I describe in this report what bark beetle activity was observed in this area, general existing stand conditions, and make recommendations to minimize future bark beetle impacts.

### ***Munds Park Forest Health Project***

The Mormon Lake RD is proposing to non-commercially thin a total 250 acres of ponderosa pine forest within the larger Munds Park Fuels Reduction project area. The Munds Park project area is located in the wildland urban interface (WUI) zone surrounding the community of Munds Park in Coconino County. The total project includes mechanical thinning (743 acres), hand thinning (250 acres), and prescribe burning (2,909 acres). The primary objectives for the 250 acres of non-commercial thinning are to improve forest health, improve stand and individual tree resilience and vigor, reduce risk of catastrophic wildfire, and improve vegetative species diversity.

The proposed forest health project is divided into two areas directly adjacent to private property in the Munds Park community. Area 1 is 115 acres and is located south and directly adjacent to private property. Area 2 is 135 acres and is located southeast of private property. The Munds Park interdisciplinary team identified this area as high fire hazard due to high stand densities, with basal areas ranging between 130 to 230+ ft<sup>2</sup>/acre. These units do not qualify for mechanical treatment due to a lack of access, lack of right-of-way, and the predominant size of trees to be thinned.

Proposed treatments include non-commercial thinning of ponderosa pine up to 9 inches in diameter; resulting in a residual basal area of less than 100 ft<sup>2</sup>/acre. Activity slash will be hand piled and burned at a later date. The proposed non-commercial thinning along with associated activity slash treatments would reduce the Fire Regime Condition Class for the treated sites from a Condition Class 3 or 2 to a Condition Class 1.

Patricia and I evaluated areas to be treated adjacent to homes in the southern portion of Munds Park (Area 1) for bark beetle activity and general stand conditions. These areas have experienced moderate bark beetle-caused mortality over the past few years and are currently experiencing low to moderate bark beetle activity (**Figure 1**). Pines were currently being attacked by western pine beetle (*Dendroctonus brevicomis*) and there were signs of previous pine mortality caused by pine engraver beetles (*Ips pini*). Stand basal areas ranged from 150 to 200+ ft<sup>2</sup>/acre with predominantly 5 to 9 inches dbh trees and scattered larger pine in the overstory.



The proposed project will increase both individual tree and stand health with residual trees being more resilient against attack from bark beetles and environmental stresses. Thinning around large yellow pines will reduce competition with smaller trees. The opening of tree canopies and the reduction of fuel ladders will reduce the risk of future crown fires.



**Figure 1.** Dense stand conditions adjacent to private property in the community of Munds Park (left) and ponderosa pine currently infested with western pine beetle (right).

### **Recommendations**

The proposed project area for non-commercial thinning treatments will help to reduce the overall susceptibility of stands to bark beetle attack in the long term as well as improve overall tree vigor, lessen risk of catastrophic wildfire, and improve vegetative species diversity. If limited funding is available, I recommend that priority be given to the Area 1 directly adjacent to the homes in the southern portion of Munds Park. The proposed project areas will be covered by a Categorical Exclusion for the Munds Park Fuels Reduction Project. The decision for this project is expected to be signed in the autumn of 2007.

High stand density reduces both individual tree and stand vigor and therefore increases stand susceptibility to mortality from bark beetles. Over the past several years the Coconino NF has seen high levels of ponderosa pine mortality, particularly in the ponderosa/pinyon-juniper transition zones that is characteristic of the proposed treatment areas. Excess competition from smaller trees has also greatly increased the mortality risk of scattered large yellow pine. Also, continuous interlocking crowns and well-developed fuels ladders leaves vegetation on these sites at a high risk of loss from catastrophic wildfire.

Thinning from below has been experimentally demonstrated to increase the resistance level of the residual mature pine overstory (Feeney, et al., 1998). Thinning slash may pose a short-term risk to residual trees in the thinning units or surrounding areas depending on the timing of thinning, local population of pine engraver beetles, and site and environmental factors such as

site quality and precipitation. Careful monitoring of beetle populations associated with these thinning projects should be implemented. Parker (1991) provides guidelines for minimizing pine engraver beetle impacts associated with thinning treatments, such as thinning during periods of bark beetle flight inactivity.

Requests for Forest Health Protection prevention/suppression funds should be submitted no later than October 12, 2007. If you have any questions regarding my assessment of current bark beetle activity within the proposed project areas or my recommendations, please let me know.

/s/ Joel D. McMillin

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cc: Patricia Ringle  
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### **References Cited**

- Feeney, S.R., T.E. Kolb, M.R. Wagner, and W.W. Covington. 1998. Influence of thinning and burning restoration treatments on pre-settlement ponderosa pines at the Gus Pearson Natural Area. *Canadian Journal of Forest Research* 28: 1295-1306.
- Parker, D.L. 1991. Integrated pest management guide: Arizona five-spined Ips, *Ips lecontei* Swaine, and Pine engraver, *Ips pini* (Say), in ponderosa pine. USDA Forest Service, Southwestern Region, R-3, 91-8. 17 p.